

EXECUTIVE SUMMARY

INTRODUCTION

The subject of this Report is the Commuter Rail Feasibility Study that addresses the technical and financial viability of implementing passenger commuter rail between Austin and San Antonio.

CONCLUSION

The operation of a commuter rail system within this corridor is feasible, both from a technical and financial perspective. Based on the new-track option, described below, the overall construction costs would be about \$475 million in 1998 dollars. It could be financed with 50% federal TEA-21 (Transportation Equity Act for the 21st Century) funds (or funds from a subsequent transportation act) supplemented with a regional sales tax of about 0.11 cents (just over one tenth of a cent) for construction and 0.015 cents (less than two hundredths of a cent) for operations after the construction bonds are paid off. Should the position of the Union Pacific Railroad (UP) change regarding sharing of tracks, a lower cost alternative may be possible.

The estimated capital cost of the analyzed commuter rail option is \$475 million. To compare that cost with comparable transportation projects, it is estimated that adding two travel lanes to IH 35 from Georgetown to San Antonio would cost about \$425 million. Also, the estimated cost for constructing SH 130 from Seguin to Georgetown is \$925 million, including right-of-way. Of course, each of these transportation options has different costs, benefits, and effectiveness. A more detailed comparison of the various options and their social, environmental and economic impacts will be a part of the next report to be prepared for this study, the alternatives analysis.

SCOPE OF THE FEASIBILITY STUDY

The IH 35 corridor between Austin and San Antonio is shown on Figure ES-1 and ES-2. The actual limits of the study extend from a passenger station in Georgetown, north of Austin, to a

station near the Kelly Air Force Base, south of San Antonio. There are existing railroads passing all along this corridor, the use of which are the subject of this study.

The study included:

- Analysis of route and operational options
- Analysis of ridership potential
- A Community Involvement Program
- Evaluation of grade crossing safety along the corridor
- Development of an operations and maintenance (O&M) plan
- Development of costs and schedules
- Development of a financing plan

SYSTEM SUMMARY

Train Schedule:

Peak Hours:	
(2 hrs AM, 2 hrs PM)	every 30 minutes
Off-peak:	every 90 minutes

One-Way Fares:

2 Zones (Austin to San Antonio)	\$9.00
1 Zone (San Marcos to either end)	\$4.50

Travel Time:

Austin to San Antonio - 103 minutes

System Length: 110 miles

Stations: 12

Average speed: 45 mph

Operating Hours: 6am to 10pm

Ridership: Year 2000: 8,000 per weekday
Year 2020: 11,000 per weekday

Grade Crossings:

Grade Separated Crossings	56
New Crossings	6
Improved At-grade Crossings	117

Costs (1998 dollars):

Construction:	
New track option	\$475 million
Shared track option	\$250 million
Operations & Maintenance:	
	\$24 million per year

Financing:

Construction:	Federal - 50%
	Regional - 50% (0.11¢ tax)
Operations & Maintenance:	
	Passenger fares - 55%
	Federal - 10%
	Regional - 35% (0.015¢ tax)

BACKGROUND

The tracks and rights-of-way of the railroads in the corridor, except for the portion from Round Rock to Georgetown, are operated by the UP and carry from 20 to 40 freight trains every day. The tracks were built in the late 1800s and have been an important part of the development of the economy of central Texas.

As early as 1994, the UP expressed interest in operating commuter rail service along this route. At that time the concept of sharing tracks between freight and passenger trains was discussed. The concept included some modest improvements to the tracks along the route and the purchase of a small fleet of commuter trains. This would have permitted service between Austin and San Antonio on the order of four trains per day. Based on those early discussions, the need for an official study of this idea was identified. Preliminary work was done to assess the demand for such a service, with an origin - destination study conducted by the Texas Transportation Institute (TTI), published in 1997. That study indicated that 63% of the automobile drivers surveyed along IH 35 would consider using commuter rail. The current feasibility study was started in mid-1998, and was to be based on the track-sharing arrangement.

However, since the UP merger with the Southern Pacific in late 1996, the UP's view of commuter rail initiatives, and particularly the sharing of tracks between freight and commuter rail trains, has changed. Today, at the beginning of 1999, the concept of sharing the freight tracks in this corridor with commuter trains is no longer considered a good business strategy by the UP. However, the UP is willing to consider the construction of a new commuter rail track in the right-of-way alongside their existing freight tracks.

This change in the UP policy effectively eliminated the original low cost approach to operating commuter rail in this corridor, at least in the short term. The only alternative left within the

constraints of UP's policy is the higher cost approach of building a new railroad track along the corridor. Although the shared-track option isn't currently acceptable to the UP, a discussion of it is included in the feasibility study as a basis of comparison.

Section 2 of the full Feasibility Report includes additional information related to the background of this project.

REGIONAL GROWTH

The population of the region continues to grow. The table below shows the forecasted population for the five counties along the UP corridor (Bexar, Comal, Hays, Travis and Williamson). Since much of the potential ridership for a commuter rail system is related to trips to and from work, employment data for the downtown areas of Austin and San Antonio is also shown.

REGIONAL GROWTH COMPARISON			
	Year 2000	Year 2020	% change
Five County Population	2,572,000	4,068,000	58%
Austin Downtown Employment	90,000	114,000	27%
San Antonio Downtown Employment	67,000	75,000	12%
IH 35 Traffic at Town Lake in Austin	210,000	330,000	57%
IH 35 Traffic at IH 410 in San Antonio	162,000	235,000	45%

The other statistic that is indicative of the growth along the corridor, also shown in the table above, is the forecasted vehicles using IH 35, measured at the Town Lake bridge in Austin and near IH 410 in San Antonio. Although construction of additional highway capacity will occur, there are limits to the amount of highway expansion that can be done. Options for travel are desperately needed, now and

in the future. Commuter rail is a complementary mode, which will also provide a sensible alternative to highway travel during the disruption caused by the planned construction projects along this corridor.

Additional information about past and future growth is included in Section 2.

RIDERSHIP ANALYSIS

The forecast of commuter rail ridership was based on a schedule of trains that would be recognized by commuters as providing regular and reliable service. The schedule used for the ridership analysis included a train every 30 minutes in the morning and evening rush hours. In addition there would be a train every 90 minutes during the rest of the day on weekdays and all day on weekends and holidays. This analysis was based on an assumed 2-zone fare system. Single rides between either end of the line and San Marcos would be \$4.50. Rides beyond that point would be \$9.00. It was further assumed that there would be various discount fares and passes, as is common on other public transportation systems.

The ridership was forecasted for the years 2000 and 2020 to provide a sense of how the ridership would change over time as a result of the steadily increasing population and employment in the region. The same schedule of trains was used for both forecast years to provide a basis for comparison.

Since a comprehensive transportation computer model of the region does not exist, this analysis was done by combining two existing ridership models for Austin and San Antonio and developing an inter-urban sketch-planning model for San Marcos, New Braunfels, and Georgetown.

Included in the Austin model was the assumption that by 2020 the entire 54-mile rail system would be in place, and the bus system would have been adjusted to support that system. In

the San Antonio model however, there was no similar future rail system included.

The ridership study concluded that if the system were running by the year 2000 approximately 8,000 passengers would board the system on an average week day. The forecast for the year 2020 was approximately 11,000 per day. While this 36% increase over 20 years is less than the population trend in the five counties, shown in the table above, it is in line with the forecasted employment trends for both Austin and San Antonio downtown areas.

The analyses of ridership are based solely on the assumptions and sources of information outlined in this Feasibility Study. The achievement of any projection may be affected by fluctuating economic conditions and depends on the occurrence of future events that cannot be assured. Therefore, the actual results achieved may vary from the projections, and the variations could be significant

The details of this ridership analysis are included in Section 7.

PUBLIC INVOLVEMENT PROGRAM

A public involvement program was organized as part of the study, consisting of a series of public meetings at three times during the course of the study. The purpose of the meetings was two-fold: to inform the public about the study and its progress, and to solicit ideas from the public.

The first two series of meetings have already been held, with the third series planned after the publication of this Feasibility Report. Each series includes a meeting in the San Antonio area, a meeting in the New Braunfels - San Marcos area, and one in the Austin area.

Newsletters were prepared and mailed to over 7,000 individuals and organizations along the corridor. These newsletters included information about the study and also served as an invitation to

the meetings. Two newsletters have been issued to date, one before each of the series of meetings. Preceding each series of meetings, press releases were also prepared for publication in area newspapers.

An Internet web page was developed as a part of the TxDOT home page. The information on the web page was taken from the newsletters. Internet links were established with the web pages of other agencies in the region to provide wide Internet access to this information.

Section 4 provides a further explanation of this public involvement program, including a summary of the comments received from the public. Details of all the meetings will be published in the Final Report.

ALTERNATE ROUTE EVALUATIONS

In several sections of the corridor more than one railroad right-of-way exists, thereby suggesting alternate routes the commuter trains might use. These alternate routes were compared and a preferred route identified. In general, the preferred route was the same whether it was a shared-track route or one constructed as a separate new railroad.

Among the alternates evaluated were:

- Two alternate routes on the north end between Round Rock and Georgetown: the existing Georgetown Railroad and the abandoned Missouri Kansas Texas Railroad (MKT) right-of-way — known locally as the MoKan. (See Figure 5.5 - Section 5) Two alternates through San Marcos: the MKT¹ (the “Katy”) and the UP. (See Figure 5.2.)

¹ Even though the MKT railroad is now owned by the UP, in the discussion that follows, the familiar MKT name is used to identify those tracks along the corridor.

- Two alternates through New Braunfels: the MKT - recently reopened after a 10-year closure and the UP. (See Figure 5.3)
- Two alternates entering San Antonio: the MKT line which parallels IH 35 and enters downtown on the east side, and the UP which passes just east of the San Antonio International Airport, and enters downtown on the west side.² (See Figure 5.4)

The study compared all of these optional routes, and chose as the preferred route a combination of the old MoKan alignment north of Round Rock and the UP alignment for the rest of the route as shown on Figures ES.1 and ES.2. This preferred route would be the same whether a new track or a track-sharing option was chosen.

A detailed description and photos of the entire route are in Section 8.

DEFINING THE NEW RAIL LINE

Under the new-track commuter rail option, new facilities would need to be built, including:

- A new single track within a 40-foot portion of the 100-foot UP right-of-way, for the entire length of the route. A typical cross-section is shown in Figure ES.3. In the segments where the UP right-of-way is less than 100 feet, some additional property will be required.
- Passing sidings, to permit the bi-directional commuter trains to pass each other, each approximately one mile in length at 10-mile intervals.
- New railroad bridges at all stream and river crossings, alongside the existing UP structures.

² Both tracks are now used by the UP for freight trains. However, the UP has discussed letting the commuter trains use the UP track, from a point just south of New Braunfels known as Ogden Junction to downtown. The UP freight trains would be shifted to the MKT, provided additional capacity is provided on that route by the addition of a second freight track.

- Special provisions at the UP spurs and sidings, to permit freight trains to cross the commuter track for access to local customers.
- Passenger stations at each of the 12 proposed locations.
- Maintenance facilities for service, inspection and maintenance of the trains.

With the shared-track option, all the items listed above will also be required except for the new tracks and bridges. Generally the existing tracks and sidings will suffice with the exception of a new siding at each station platform and new tracks at the maintenance facility.

Passenger Stations

There are 12 stations proposed, at the locations shown on Figures ES-1 and ES-2. As proposed, each station will consist of a platform, approximately 400 feet in length, with a short overhead canopy at the center to shield passengers from the sun and rain. Ticket dispensers will be located on the platform. Parking will be provided at each station for those wanting to park and ride. The stations, as well as the rest of the system, will be fully ADA accessible.

Connections will be provided by the local transit service in each area. Such transit connections will be vital to the success of the system and will be carefully coordinated with each of the local transit agencies.

GRADE CROSSING SAFETY

The present tracks include many crossings with streets and highways, called “grade-crossings.” Safety at those crossings, for both trains and motor vehicles, is important. With a change in the type and number of trains operating, it was necessary to analyze the new configuration to be sure the current safety level was maintained. Through a detailed analysis of every crossing, a number of safety improvements are proposed.

The table below shows the number of crossings along the corridor, for today and those proposed

for the future. Section 9 provides a more detailed description of the analysis as well as the upgrade program. As shown by the table, all the crossings today that are passive (meaning they have neither lights or gates) or are flashing lights only, will be upgraded to gates. Of the gated crossings, some will be improved to include automatic-diagnostic detectors or will be upgraded to a four-quadrant gate. Twelve, yet to be identified, crossings will be closed and eight new grade separations will be built. The result will be 14 fewer at-grade crossings than today, and all will have improved safety features.

GRADE CROSSING SUMMARY		
Type of Crossing Protection	Existing Crossings	Upgraded Crossings
Passive Devices Only	28	none
Flashing Lights Only	6	none
Standard Lights and Gates	97	88
Automatic-Diagnostic Gates	none	12
Four-Quadrant Gates*	none	17
New Crossings along MoKan ROW	none	6
Crossing Closures	n.a.	minus 12
Grade Separations	48	56
Pedestrian Crossings	1	1
Total In Corridor	180	174

* or other advanced crossing protection system

OPERATING & MAINTENANCE PLAN

A plan of operations was developed based on the train schedule used for the ridership analysis. This schedule, using the speeds currently permitted by the UP, produces the travel times shown in the following table.

It was assumed that the trains will consist of two bi-level passenger cars, each with 140 passenger seats, pulled by a diesel locomotive operating in “push-pull” fashion. This means the locomotives pull the train in one direction and push it in the other. This is the most common form of commuter rail operation in the United States and has been used successfully for decades. To support the schedule, 13 trains will be needed plus one reserve train.

Maintenance will be performed on the trains at night and during the mid-day period at a system maintenance facility. Two possible locations for

TRAVEL TIMES	
Between	Time
Georgetown & Downtown Austin	30 minutes
Round Rock & Downtown Austin	26 minutes
Downtown Austin & San Marcos	43 minutes
San Marcos & New Braunfels	23 minutes
New Braunfels & Downtown San Antonio	37 minutes
San Antonio Airport & Downtown San Antonio	10 minutes
Downtown San Antonio & Kelly	15 minutes
Downtown Austin & Downtown San Antonio	103 minutes
Georgetown & Kelly (end to end)	148 minutes

this facility were identified: south of San Marcos near the middle of the system, or at the south end near Kelly.

At both end stations, there will be a limited amount of storage track so that when the trains

are not in service minor maintenance and cleaning can be performed.

From the proposed operations and maintenance plan, the following estimate of operating and maintenance costs was developed.

Operations & Maintenance Costs

An analysis was made of the costs for operating and maintaining the system after beginning revenue service. These costs, based on experience of similar commuter rail systems, indicate that it will cost approximately \$24 million

ANNUAL OPERATING AND MAINTENANCE COSTS	
Weekday & Weekend Service	
Item	Millions 1998 \$
Train Crews	\$3.1
Train Fuel & Maintenance	\$7.6
Maintenance-of-way	\$5.8
Sales & Marketing	\$2.9
General & Administrative	\$3.9
Insurance	\$1.0
TOTAL	\$ 24.3

per year (1998 dollars) for all operational and maintenance expenses. Within the Maintenance-of-way item above is the cleaning and maintenance of everything other than the trains. This includes tracks, bridges, stations, parking lots, signals, etc.

This annual cost is an average of about \$8 per passenger. Compared to the average fare paid, over half the operating cost will be recovered from the fare revenue.

Additional details of the operating and maintenance plan are in Section 10, and more detailed

discussion of the costs included in Section 12.

CONSTRUCTION COSTS

The costs to build the needed facilities and tracks and to buy the rolling stock were developed using data from recent similar projects around the country. The total cost to build the new-track version of the commuter system described along the 110-mile preferred route is approximately \$475 million (1998 dollars), including all construction, rolling stock, rights-of-way, and design and management expenses. This equates to a cost of approximately \$4.3 million per mile.

If the shared track option could be used, the cost would be about \$250 million. However, the shared-track option for this cost, would not be capable of handling the same number of trains proposed for the new-track option. For that to occur, some yet to be determined additional cost would be needed, for modifications to the UP freight tracks to provide additional capacity to allow for the proposed schedule of passenger trains.

PROJECT IMPLEMENTATION PLAN

A conceptual Implementation Plan was developed for use in the financial analysis. This plan is preliminary and has been developed to provide only a general sense of the overall project timing.

Project Initiation

Project initiation includes establishing the implementing agency, securing the needed local dedicated source of financing, and reaching an understanding with the UP. The process is expected to take from one to two years; and could take considerably longer depending on the negotiations with the UP.

EIS Phase

In order to be eligible for federal funds, an environmental impact statement will be needed. Included in this phase would be preliminary engineering to further define the project. The

EIS is expected to take a minimum of two years. Some of this work might be done in parallel with the project initiation activities to save time. Property acquisition might also be started during this period, using non-federal funds.

Design & Construction Phase

This phase will take between two and five years depending on the process adopted. This would include the final design, the construction of all track and facilities, and the purchase of the trains. The finalization of all rights-of-way purchases would also be done during this period.

CONSTRUCTION COSTS (Millions 1998 \$)		
Cost Element	New Track Option	Shared Option
Tracks	\$ 116	\$47
Bridges	46	-
Passenger Stations	20	20
Signaling	48	21
Maintenance Shop & Yard	7	7
Grade Crossings	37	37
Rights-of-Way	27	2
Purchase of Trains	66	66
Testing & Start-up	2	1
Design & Management	49	22
Agency Costs	7	3
Contingencies	50	24
GRANDTOTAL	\$ 475	\$250

Testing and Start-Up Phase

After the completion of construction, the testing and safety certification of the overall operating system would be done. This must be completed prior to carrying the first commuters.

Depending upon the sequence and process for all the activities above, the first passenger service could start operations from four to nine years after project initiation.

FINANCIAL ANALYSIS

An analysis was performed of the funds needed to build and operate the system and the possible sources of these funds. A federal contribution of 50% of the capital costs was assumed to come from TEA-21 Section 5309 New Starts funds or from subsequent transportation authorizations.³ The balance was assumed to be funded with local money from the region. In order to estimate the magnitude of the potential regional funds, the retail tax base of the five counties along the route (Bexar, Comal, Hays, Travis, and Williamson) was analyzed. The analysis concluded that a 0.0011 sales tax (just over one tenth of a cent) for the five county area should generate sufficient income to pay for the capital program (including paying off project bonds) and pay for the operating deficit through that same period.⁴ These funds would be supplemented by revenue bonds and later by TEA-21 Section 5309 Modernization funds. This tax rate would continue for about 15 years until the construction bonds had been retired.

After that point the taxes needed, discussed below, would drop to a lower level.

Operating costs of approximately \$24 million per year (1998 dollars) were projected. Passenger fares were estimated to fund over half of the operating expenses. The remaining operating expenses would be funded by a combination of TEA-21 Section 5307 Preventive Maintenance funds, and by a regional sales tax in the five-county area of 0.00015 (less than two hundredths of a cent).

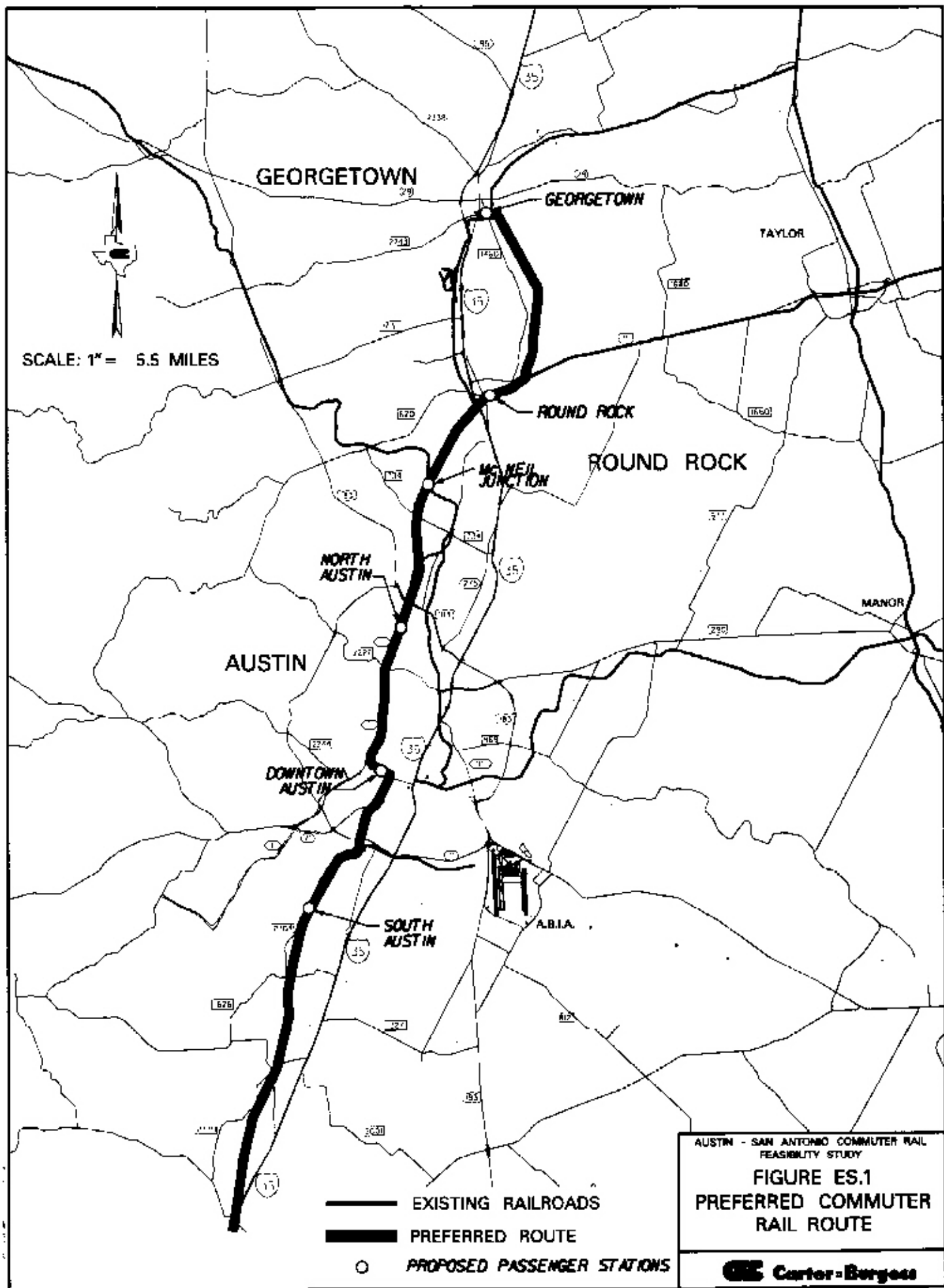
This financial plan is covered in more detail in Section 14.

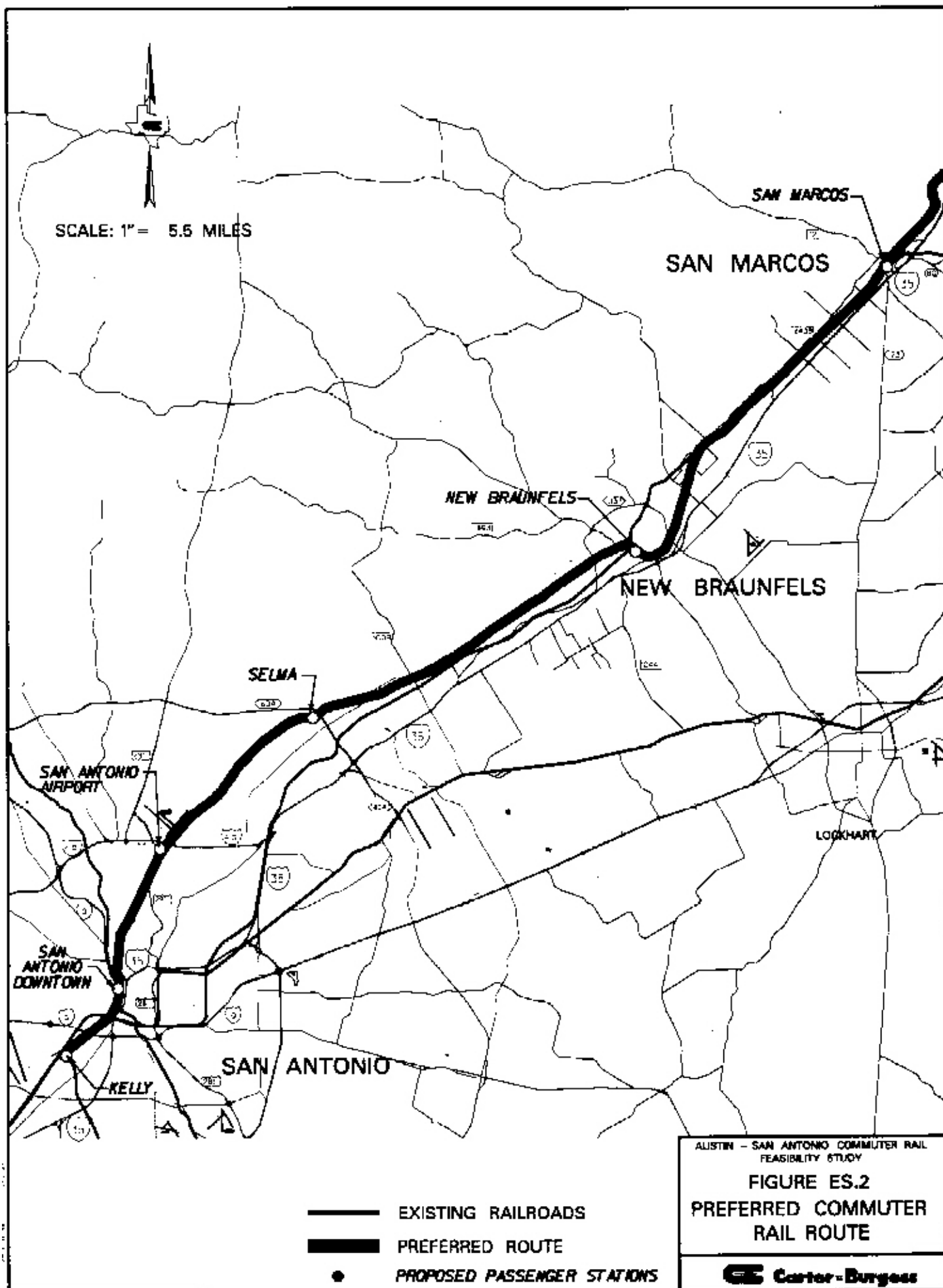
NEXT STEPS

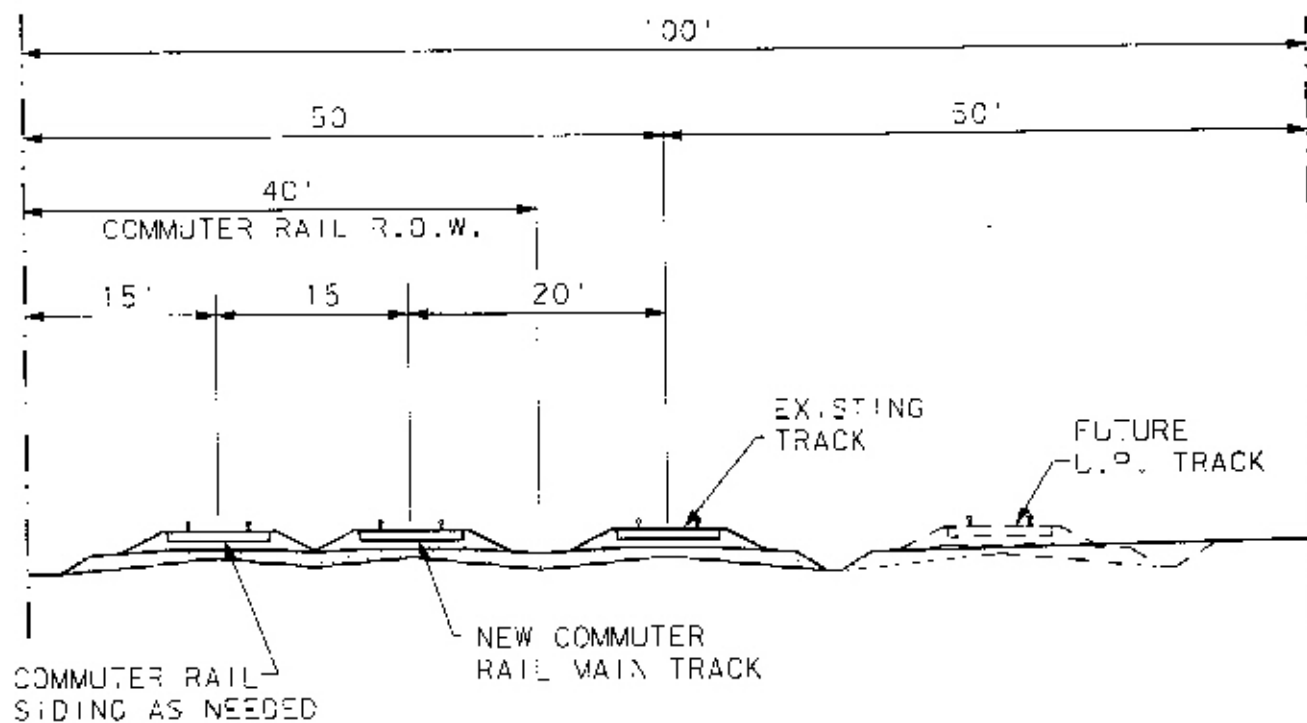
The next step for the agencies interested in commuter rail would be to create an institutional mechanism, such as the Commuter Rail District, to fund and implement the commuter rail system. Technical activities such as the environmental analysis and preliminary engineering should be done in parallel with these institutional activities. An effort should also begin immediately to negotiate with the UP to develop a mutually satisfactory approach to this project.

³ Although Congress authorized these funds through TEA 21, the funds must still be appropriated during the budget process. For this project to receive Section 5309 funds prior to FY 2003, Congress would have to appropriate funds at a higher level than authorized under TEA 21. This project could also receive New Starts funding under the next federal transportation bill, e.g. FY 2004.

⁴ The current State of Texas sales tax rate is 6.25 cents per dollar of retail sales. Some communities in the corridor are already collecting the maximum 2% local sales tax. Increasing this would require legislative action.







AUSTIN - SAN ANTONIO COMMUTER RAIL
FEASIBILITY STUDY

FIGURE ES.3
TYPICAL SECTION
UP RIGHT-OF-WAY

Carter-Burgess